

Original Article

FREQUENCY OF MATERNAL COMPLICATIONS OF GRAND MULTI-PARITY IN WOMEN UNDERGOING DELIVERIES IN A TERTIARY CARE SETUP OF KHYBER PAKHTUNKHWA, PAKISTAN

Irum Shehzadi[✉], Shehneela, Bushra Bashir, Bibi Sara, Beenish Salam

Department of Obstetrics and Gynaecology, King Abdullah Teaching Hospital, Mansehra, Health Department, KP Pakistan

Background: Grand multi-parity bears a set of complications. The relationship between obstetric complications and parity has been studied extensively, with inconsistent findings, particularly in the Pakistani context. Therefore, this study was conducted to determine the frequency of maternal complications in grand multiparous women undergoing deliveries. **Methods:** After the approval of the ethical review board, this descriptive cross-sectional study was conducted from June 2022 to February 2023 in the Obstetrics and Gynaecology Department, Ayub Teaching Hospital, Abbottabad. Through non-probability consecutive sampling, 170 grand multipara women were enrolled in this study. They were managed in the department and were observed for the development of complications such as pregnancy-induced hypertension, placenta previa, pre-mature rupture of membranes, and placental abruption. **Results:** The most common complication was pregnancy-induced hypertension, 11(6.47%), followed by placenta previa, 10 (5.88%), pre-mature rupture of membranes, 7(4.12%), and placental abruption, 5 (2.94%). No statistically significant association was observed when the complications were stratified according to age and parity of patients ($p>0.05$). **Conclusion:** Grand multi-parity is associated with a number of obstetrical complications, with pregnancy-induced hypertension at the top. The antenatal care of these patients should be designed in a way to reduce the occurrence of these complications.

Keywords: Grand multi-parity; complication; Pakistan

[✉]**Corresponding author: Dr Irum Shehzadi**, MBBS, FCPS (Gynae-Obst), Medical Officer, Department of Obstetrics and Gynaecology, King Abdullah Teaching Hospital Mansehra, Health Department KP Pakistan. **Cell:** +92-332-8914884, **Email:** irumamc76@gmail.com

Cite this Article: Shehzadi I, Shehneela, Bashir B, Sara B, Salam B. Frequency of maternal complications of grand multi-parity in women undergoing deliveries in a tertiary care setup of Khyber Pakhtunkhwa, Pakistan. *Medpulse Spectrum* 2025;1(1):11-14

Submitted: 24th January 2025

Revised: 18th March 2025

Accepted: 21st March 2025

INTRODUCTION

Grand multi-parity (GMP) is defined as a woman who has conceived five or more times with a gestational age of 20 weeks, irrespective of the outcome.¹ Bethel Solomons, in 1934, introduced this term and called it “dangerous multipara.”² Its incidence varies region-wise. In developing countries, it is still a significant cause of maternal complications and increased fatalities, with an incidence range of 10–30%.^{3,4} Moreover, it bears adverse outcomes leading to socio-economic implications for the mother, family, and health systems.⁵

Literature also suggests that GMP complications depend on region, socio-economic factors, access to healthcare services, culture, religion, and the desires of large families.¹ In developing countries with limited resources, like Pakistan, Bangladesh, and India, literature has proven that the complications are included but not limited to pregnancy-induced hypertension (PIH), gestational diabetes, post-partum haemorrhage (PPH), placenta abruptio, and pre-mature rupture of uterine membrane (PROM).⁶ However, in high-resource settings, some complications like uterine rupture showed an association with GMP.⁷

In Pakistan, Akhtar R *et al*, retrieved one one-year record of 680 GMP patients in which 15% of GMP had hypertension, diabetes 10.6%, and antepartum haemorrhage 6.2% annually.⁸ In India, Afzal A *et al*, studied 2320 cases of deliveries having 5.76% of GMP. She reported anaemia as the highest 68% presentation among GMP, whereas placenta previa at 7%, placenta abruptio at 5.9%, diabetes at 5.8%, and hypertension at 10%.⁹ In Malaysia, Nordin NM *et al*, included 237 GMP having hypertension at 16.9%, anaemia at 6.3%, and PROM at 1.3%.¹⁰

Considering the aforementioned details, GMP complications are multifactorial, such as region, cultural differences, and availability of resources. It is imperative to know and present to the Obstetricians of the northern region of Pakistan the most prevalent complications of GMP; therefore, this study aims to determine the frequency of maternal complications of GMP in women undergoing deliveries.

MATERIALS AND METHODS

This descriptive cross-sectional study was conducted in the Department of Obstetrics and Gynaecology unit C,

Ayub Teaching Hospital, Abbottabad, from June 2022 to February 2023 after getting approval from the ethical review board. The sample size for this study was 170, calculated using the “WHO software for sample size calculation” with a confidence level of 95%, the anticipated proportion of population, i.e., placental abruption of 12.6%⁸ and absolute precision of 5%.

Through non-probability consecutive sampling, GMP women aged between 30 and 49 years were included in the study. Patients with essential hypertension, chronic and malignant disorders, or any known bleeding disorder were excluded.

Patients presenting to the outpatient departments and emergency Obstetrics and Gynaecology unit C of Ayub Teaching Hospital, Abbottabad, were included in the study after inclusion criteria were met and informed consent was obtained. These selected patients were booked in the antenatal clinic. At the 36th week of gestation, the GMP women were evaluated for complications like placenta previa, PIH, PROM, and placental abruption by a senior obstetrician. All information was noted in a pro forma by the principal researcher herself.

Data was analysed using SPSS-21. Categorical variables like placenta previa, PIH, PROM, and placental abruption were described as frequencies and percentages. Qualitative variables, like age, parity, and blood pressure, were described as Mean±SD. Data was stratified by age and parity with respect to complications. A chi-square test at 5% was applied to determine the significant difference in complications by age and parity.

RESULTS

The study enrolled 170 grand multipara women with a mean age of 37.40±3.88 years, Table-1.

The frequency of PIH, placenta previa, PROM, and placental abruption in the study was 11(6.47%), 10(5.88%), 7(4.12%), and 5(2.94%), respectively, Table-2.

No statistically significant association was found when the complications were stratified according to age and parity of study participants. However, 6 cases of PIH and 4 cases of Abruption Placentae were found in women over 37 years of age. Placenta previa and PROM were documented at an early age, i.e., less than 37 years, Tables-3 and 4.

Table-1: Descriptive statistics of the study population

Variable	Mean±SD	Minimum	Maximum
Age of patients	37.40±3.88	31	44
Parity of patients	6.89±1.40	5	9
Systolic Blood Pressure	132.44±8.98	120	155
Diastolic Blood Pressure	75.96±5.24	70	96

Table-2: Presence or absence of different conditions among the study sample (n=170)

Variables	Frequencies	Percentages
Present	11	6.47

Pregnancy Induced Hypertension	Absent	159	93.53
Placenta Previa	Present	10	5.88
	Absent	160	94.12
Pre-mature rupture of membranes	Present	7	4.12
	Absent	163	95.88
Abruption Placentae	Present	5	2.94
	Absent	165	97.06

Table-3: Cross-tabulation of age and complications of grand multi-parity

Condition incidence	Age		Total	p
	<37	>37		
Pregnancy Induced Hypertension				
Present	5	6	11	0.69
Absent	82	77	159	
Placenta Previa				
Present	6	4	10	0.56
Absent	81	79	160	
Pre-mature rupture of membranes				
Present	5	2	7	0.27
Absent	82	81	163	
Abruptio Placentae				
Present	1	4	5	0.16
Absent	86	79	165	

$p \leq 0.05$

Table-4: Cross-tabulation of parity with complications of grand multi-parity

Condition incidence	Parities		Total	p
	Upto 7	<7		
Pregnancy Induced Hypertension				
Present	4	7	11	0.06
Absent	103	56	159	
Placenta Previa				
Present	5	5	10	0.38
Absent	102	58	160	
Pre-mature rupture of Membranes				
Present	4	3	7	0.75
Absent	104	59	163	
Abruptio Placentae				
Present	4	1	5	0.42
Absent	99	66	165	

$p \leq 0.05$

DISCUSSION

This study aimed to determine the frequency of common maternal complications associated with GMP. The current study showed no significant association between the age of patients and the complications. Similar results were observed when complications were stratified according to the age and parity of study participants.

GMP has been linked to several maternal conditions. Our study found PIH, PROM, Placenta previa, and abruption placentae as significant complications. Mgaya and colleagues discovered in 2013 that GMP patients had double the likelihood of malpresentation and three times the risk of meconium-stained fluid and placenta previa in comparison to lower-parity women, even after adjusting for age.¹¹ According to another study by Alsammani *et al*, large multiparty births remain a prominent obstetrics issue. It is associated with a variety of medical and obstetric concerns.¹²

A prospective comparative study from Bangladesh reported that among GMP patients, 95% were suffering from anaemia of different severity. The incidence of hypertension and gestational diabetes in grand multiparas was significantly higher than in non-grand multiparas (45% vs. 12%) and (12% vs. 2%), respectively. The other complications like placenta praevia, abruptio placentae, multiple pregnancies, malpresentation, PPH, and ruptured uterus were significantly higher among GMP.¹¹

A descriptive cross-sectional study from Hyderabad, Pakistan, reported that GMP was associated with a number of complications for the mother, and the authors concluded that the effect of these complications could easily be minimised by better antenatal care.¹² The study enrolled 159 pregnant patients having maternal complications of anaemia at 23.27% and hypertension at 5.03%.¹³ GMP women were older, married earlier, received less prenatal care, and had a higher history of stillbirth, twin, and preeclampsia than primipara women, according to a retrospective case-control study conducted in Turkey to ascertain the impact of GMP on maternal, obstetric, neonatal, and foetal outcomes.¹⁴ Compared to primipara women, preeclampsia, PPH, and foetal distress were more prevalent in this pregnancy. Compared to primiparas, grand multipara infants required much more newborn critical care and had lower birth weights.^{13,15,16}

Stressing the value of family planning and giving proper prenatal care is crucial in societies where large families are favoured. In an analysis of 430 GMP women, the researchers discovered a strong correlation between GMP and unfavourable pregnancy outcomes such as diabetes mellitus, PIH, and caesarean delivery. Placental abruption, placenta previa, preterm labour, PPH, and the frequency of hospitalisation to the newborn critical care unit were not significantly correlated with each other.¹²

This was a hospital-based study with a small sample size that did not represent the entire general population. Also, the neonatal complication of GMP, the socio-economic status, and the desire for a large family size by either parent were not studied. A comparative cross-sectional study looking into the entire complication profile and finding an association with sociodemographic variables is recommended.

CONCLUSION

Grand multi-parity is associated with a number of obstetrical complications, with pregnancy-induced hypertension at the top. The antenatal care of these patients should be designed in a way to reduce the occurrence of these complications.

REFERENCES

1. Alkwaï H, Khan F, Alshammari R, Batool A, Sogair E, Alenazi F, Alshammari K, *et al.* The Association between Grand Multi-parity and Adverse Neonatal Outcomes: A Retrospective Cohort Study from Ha'il, Saudi Arabia. *Children (Basel)*. 2023;10(9):1541. DOI: <https://doi.org/10.3390/children10091541>
2. Solomons B. The dangerous multipara. *Lancet* 1934;224(5784):8–11. DOI: [https://doi.org/10.1016/S0140-6736\(00\)90086-2](https://doi.org/10.1016/S0140-6736(00)90086-2)
3. Dasa TT, Okunola MA, Dessie Y. Effect of grand multi-parity on the adverse birth outcome: A hospital-based prospective cohort study in Sidama Region, Ethiopia. *Int J Womens Health* 2022;14:363–72. DOI: <https://doi.org/10.2147/IJWH.S350991>
4. World Health Organization. Maternal mortality [Internet]. Geneva: World Health Organization; 2023 [cited 2025 May 19]. Available from: <https://www.who.int/news-room/fact-sheets/detail/maternal-mortality>
5. Maraj H, Kumari S. No clarity on the definition of parity: A survey accessing interpretation of the word parity amongst obstetricians and midwives and a literature review. *Eur J Obstet Gynecol Reprod Biol* 2021;263:15–19. DOI: <https://doi.org/10.1016/j.ejogrb.2021.05.042>
6. Lopian M, Kashani-Ligumski L, Cohen R, Herzlich J, Vinnikov Y, Perlman S. Grand multi-parity, is it a help or a hindrance in a trial of labor after cesarean section (TOLAC)? *J Matern Foetal Neonat Med* 2023;36(1):2190835. DOI: <https://doi.org/10.1080/14767058.2023.2190835>
7. Hochler H, Wainstock T, Lipschuetz M, Sheiner E, Ezra Y, Yagel S, *et al.* Grandmultiparity, maternal age, and the risk for uterine rupture – a multicenter cohort study. *Acta Obstet Gynecol Scand* 2020;99(2):267–273. DOI: <https://doi.org/10.1111/aogs.13725>
8. Akhtar R, Afridi S, Karim R, Malik NN. Frequency of maternal and foetal outcome in grand multipara women: Khyber J Med Sci 2018;11(3):376–79.
9. Afzal A, Mahajan N, Firdous N. Pregnancy outcomes in grand multiparous patients: a hospital-based study from Jammu and Kashmir, India. *Int J Reprod Contracept Obstet Gynecol* 2016;5(3):788–92. DOI: <https://doi.org/10.18203/2320-1770.ijrcog20160585>
10. Nordin NM, Fen CK, Isa S, Symonds EM. Is grandmultiparity a significant risk factor in this new millennium? *Malays J Med Sci* 2006;13(2):52–60.
11. Mgaya AH, Massawe SN, Kidanto HL, Mgaya HN. Grand multiparity: is it still a risk in pregnancy? *BMC Pregnancy Childbirth* 2013;13:241. DOI: <https://doi.org/10.1186/1471-2393-13-241>
12. Alsammani MA, Ahmed SR. Grand Multi-parity: Risk Factors and Outcome in a Tertiary Hospital: a Comparative Study. *Materia Sociomed* 2015;27(4): 244–7. DOI: <https://doi.org/10.5455/msm.2015.27.244-247>
13. Sham N, Das PC, Maheshwari, Memon SA. Maternal complications in grand multipara. *Med Channel*. 2016;22(1):38–42.
14. Başkiran Y, Uçkan K, Çeleğen I. Effect of grand multi-parity on maternal, obstetric, foetal and neonatal results. *Eur Rev Med Pharmacol Sci* 2023;27(22):10979–84. https://doi.org/10.26355/eurrev_202311_34466
15. Shahida SM, Islam MA, Begum S, Hossain MA, Azam MS. Maternal outcome of grand multipara. *Mymensingh Med J* 2011;20(3):381–5.
16. Bezircioglu I. The effect of grand multi-parity on maternal, obstetric, foetal and neonatal outcomes. *Perinat J* 2013;21(1):17–22. DOI: https://doi.org/10.26355/eurrev_202311_34466

Authors' contribution: IS: Significant contribution to study design, data collection, or analysis; Drafted or critically revised the manuscript; Approved the final version for publication; Agrees to take responsibility for the work's integrity and accuracy. S, BS: Significant contribution to study design, data

collection, or analysis; Drafted or critically revised the manuscript; Agrees to take responsibility for the work's integrity and accuracy. **BS, BB**: Drafted or critically revised the manuscript; Approved the final version for publication; Agrees to take responsibility for the work's integrity and accuracy.

Conflict of interest: declared NONE

Source of funding: declared NONE

Copyright: retained by authors

Published version: approved by authors
